REMARKS

Applicants thank the Examiner for reviewing the specification, and the indicated allowability of Claims 4 and 11. Claim 5 has been cancelled, and Claims 13-22 have been added. Accordingly, Claims 1-4 and 6-22 are presented for examination.

Oath/Declaration

The Examiner asserts that the Declaration is defective for having hand-written changes that were not initialed. Applicants enclose herewith a newly signed Declaration by inventor Jianming Li. Accordingly, Applicants respectfully submit that the Declaration is fully in compliance with 37 C.F.R. § 1.67(a).

Specification

The Examiner objects to the disclosure because the status of the parent application discussed in first paragraph of the specification was not updated. Applicants have updated the specification to indicate the proper status of this application, thus obviating this objection.

Claim Objections

The Examiner objects to Claims 1, 6 and 11 because of several informalities. Specifically, the Examiner stated that the abbreviation BIN1 should be spelled out in all of the independent claims and that the term "brassinolide" was misspelled in Claim 6. Applicants have amended these claims to correct the informalities. Accordingly, Applicants respectfully request withdrawal of this objection.

Rejection under 35 U.S.C § 112, Second Paragraph

Claims 5, 8, and 9 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants traverse this rejection.

Specifically, the Examiner alleges that while the claims refer to amino acid substitutions at specific positions, the claims do not refer to a specific sequence identifier number (SEQ ID NO.). Claim 3, on which claim 5 depends, recites SEQ ID NO:2. In addition, the claims as written specifically recite the BIN1 polypeptide that is described in detail in the specification.

One of ordinary skill in view of the specification and sequence listing could readily determine the proper positions of the claimed amino acid substitutions.

However, solely to advance prosecution of this application, Applicants have amended Claim 1 to specifically refer to SEQ ID NO: 2. Accordingly, Applicants respectfully request withdrawal of this rejection.

Rejections under 35 U.S.C § 112, First Paragraph

Claims 1-3 and 5-10 are rejected under 35 U.S.C. §112, first paragraph, because the specification allegedly does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. Applicants respectfully traverse this rejection.

Applicants respectfully submit that the specification fully enables the claimed invention. The test for enablement is defined in *In re Wands*, where the statute, 35 U.S.C. § 112, first paragraph, is interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the claimed invention without undue experimentation. *See* 858 F. 2d at 737, 8 U.S.P.Q.2d at 1404 (Fed. Cir. 1988). The fact that experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation. *See* 221 U.S.P.Q. 1165, 1174 (Int'l Trade Comm'n 1983), aff'd. *sub nom., Massachusetts Institute of Technology v. A.B. Fortia*, 774 F.2d 1104, 227 U.S.P.Q. 428 (Fed. Cir. 1985).

The Examiner acknowledges that the specification is enabling for substantially purified BIN1 polypeptides comprising a fragment of SEQ ID NO: 2 that binds brassinosteroids. However, the Examiner erroneously asserts that the specification does not enable other BIN1 variants. Applicants respectfully disagree.

The specification discloses multiple specific BIN1 variants (for example, BIN1-104, BIN1-102, BIN1-6, BIN1-116) with detectable binding activity (page 17). For each of these variants, the specification teaches how they are different with respect to SEQ ID NO: 2. In particular, BIN1-104 can be synthesized by substituting a threonine for an alanine at position

1031, BIN1-102 can be synthesized by substituting an isoleucine for a threonine at position 750, BIN1-6 can be synthesized by substituting an aspartate for a glycine at position 644, and BIN1-116 can be synthesized by substituting a stop codon for a glutamine at position 583. Following the teachings of the specification and utilizing knowledge common within the art, a skilled artisan could readily construct any desired BIN1 variant without undue experimentation.

After synthesizing a BIN1 variant, it also within the skill of the art to determine whether it possess sufficient binding activity. The present specification provides ample guidance on how to perform relevant binding assays (Example 3, pages 49-50) and the binding activity of four particular BIN1 variants is presented (Brief Description of the Figures, pages 4-5, and Fig. 3C). For this reason, while some experimentation might be necessary to determine whether any particular variant could bind brassinosteroid, the level of experimentation would be routine, and not undue.

Applicants note that Claim 5 has been cancelled, obviating its rejection. In addition, Claim 9 has been amended to correct a typographical error. As now indicated, the substitution of threonine to isoleucine is at position 750 in SEQ ID NO: 2. Support for this change can be found on page 17 of the specification.

Accordingly, Applicants submit that the specification is fully enabled for BIN1 and BIN1 variants. Following the teachings of the specification, a person with ordinary skill in the art would be able to make and screen any desired BIN1 variant. For the above reasons, Applicants respectfully request withdrawal of the rejection of claims 1-3 and 5-10 under 35 U.S.C § 112, first paragraph.

Rejection under 35 U.S.C § 112, First Paragraph

Claim 11 is rejected under 35 U.S.C § 112, first paragraph, as containing subject matter which was allegedly not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse.

To satisfy the written description requirement, a patent application must describe the invention in sufficient detail that one of skill in the relevant art could conclude that the inventor was in possession of the claimed invention at the time the application was filed. *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, (Fed. Cir. 1991). According to the Federal Circuit, it is clear that Applicants need not precisely recite each and every element of a claim limitation in the specification in order to satisfy the written description requirement. *See Union Oil of Cal. v. Atlantic Richfield Co.*, 208 F.3d 989 (Fed. Cir. 2000).

The Examiner erroneously asserts that the specification does not indicate where the "extracellular domain" of the BIN1 receptor begins and ends. Applicants note that a description of the "extracellular domain" of the BIN1 receptor is provided on page 19, lines 9-11 of the specification. In particular, this section states that "[a]ntibodies directed against peptides derived from the extracellular domain of BIN1 are preferred (e.g., peptides contained in the domain from about amino acid 588 to 649 of SEQ ID NO:2)." Accordingly, a skilled artisan would know that Applicants were in possession of this particular sequence.

However, solely to advance prosecution, Applicants have amended Claim 11 to recite a "a substantially purified Brassinosteroid 1 plasma membrane receptor (BIN1) polypeptide comprising a fragment of the amino acid sequence of SEQ ID NO: 2, wherein said fragment binds to brassinosteroids." It is noted that the Examiner stated on page 8 of the pending Office Action that this claim satisfies the written description provision of 35 U.S.C § 112. It should also be noted that the Examiner stated that "making and screening fragments of SEQ ID NO: 2 for brassinosteroid binding activity would have been routine." Specific support for this limitation can be found on page 6, lines 10-25 of the specification. Accordingly, Applicants respectfully request withdrawal of this rejection.

For all of the above reasons, Applicants respectfully request withdrawal of all rejections under 35 U.S.C. § 112, and allowance of the pending application.

CONCLUSION

Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. Accordingly, amendments to the claims, the reasons therefor, and arguments in support of the patentability of the pending claim set are presented above. Any claim amendments which are not specifically discussed in the above remarks are made in order to improve the clarity of claim language, to correct grammatical mistakes or ambiguities, and to otherwise improve the capacity of the claims to particularly and distinctly point out the invention to those of skill in the art. In light of the above amendments and remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410. If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to initiate the same with the undersigned.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 6/27/03

By: Marc Baumgartner

Marc C. Baumgartner
Registration No. P-53,976
Attorney of Record
Customer No. 20,995
(619) 235-8550

[S:\DOCS\MCB\MCB-2041.DOC
062603]
S:\DOCS\MCB\MCB-2027.DOC
062603